Listing of the claims

The following listing of claims replaces all prior versions and listings of claims in the application:

1-17. (canceled)

18. (withdrawn) A method of steering a catheter within a human body comprising:

providing for introduction of a catheter into the human body, the catheter comprising a tubular body including at least one lumen, the at least one lumen defining an inlet port adapted for coupling to a fluid source, the at least one lumen being otherwise sealed; and

providing for introduction of a fluid from the fluid source into the inlet port, the fluid creating force to bend the tubular body and thereby steer the catheter.

19. (withdrawn) The method of claim 18 wherein the at least one lumen comprises at least a first lumen and at least a second lumen, the first lumen terminating at a first point along the length and circumference of the catheter, the second lumen terminating at a second point along the length and circumference of the catheter, the first lumen including a first inlet port adapted for coupling to a fluid source, the second lumen including a second inlet port adapted for coupling to the fluid source, and further comprising:

providing for introduction of a fluid from the fluid source into the first inlet port, the fluid creating a first force to bend the tubular body; and

providing for introduction of a fluid from the fluid source into the second inlet port, the fluid creating a second force to bend the tubular body.

20. (withdrawn) The method of claim 19 whereby the catheter may be steered in any direction.

21. (previously presented) A method of steering and shaping a catheter for examination, diagnosis, or treatment of target tissue, the catheter comprising

- a longitudinally-extending catheter body having a distal end and a catheter body longitudinal axis extending along a catheter body longitudinal centroid;

- at least one longitudinally-extending steering lumen having a steering lumen longitudinal axis that is offset from said catheter body longitudinal axis, wherein said steering lumen comprises at least one inlet port adapted to be operably coupled to a fluid source via a fluid control means; and
- an active region;

the method comprising the steps of

(a) inserting said active region of said catheter body into a blood vessel within a patient's body containing the target tissue;

(b) introducing steering fluid through said at least one inlet port and into said at least one steering lumen; and

(c) regulating said steering fluid in said at least one steering lumen to steer said active region adjacent to the target tissue using fluid-force-induced bending moments.

22. (previously presented) The method of claim 21, wherein said catheter body defines a curved loop at said distal end of said catheter body, and wherein step (c) further comprises introducing fluid into said at least one longitudinally-extending steering lumen until said loop expands and drives said ablation region into contact with the target tissue.

23. (previously presented) A method of steering and shaping a catheter for examination, diagnosis, or treatment of target tissue, the catheter comprising

- a body having a proximal end region and a distal end, said catheter body defining at least a first steering lumen extending from said proximal end region to a more-distal point along said catheter body, wherein said first steering lumen comprises a first inlet port adapted to be coupled to a first fluid source; and
- an active region adjacent to said distal end of said catheter body, wherein said first steering lumen extends along said active region;

the method comprising the steps of

(a) inserting said distal end of said catheter body into a blood vessel within a patient's body containing the target tissue;

(b) introducing steering fluid through said first inlet port and into said first steering lumen; and

(c) regulating a flow rate and a pressure of said steering fluid in said first steering lumen to steer said active region adjacent to the target tissue using fluid-force-induced bending moments.

24. (previously presented) The method of claim 23, wherein said first lumen is otherwise sealed, and wherein the method further comprises the step of (d) regulating said flow rate and said pressure of said steering fluid in said first steering lumen to shape at least a portion of said active region into at least partial conformity with the target tissue using said fluid-force-induced bending moments.

25. (previously presented) The method of claim 23, wherein said catheter body is preconfigured with at least one curve, and wherein said step (c) further comprises adjusting said flow rate and said pressure of said steering fluid in said first steering lumen to alter said at least one curve and to thereby achieve a desired deflection of said active region to steer said active region to the target tissue.

26. (previously presented) The method of claim 23, wherein said step (c) further comprises increasing, decreasing, or eliminating said steering fluid in said first steering lumen to achieve a desired steering or shaping of said distal end of said catheter body.

27. (previously presented) A method of steering and shaping a catheter for examination, diagnosis, or treatment of target tissue, the catheter comprising

- a tubular body comprising a proximal end region and a distal end, said tubular body defining a plurality of steering lumens including a first steering lumen and a second steering lumen, wherein said first steering lumen extends from said proximal end region and terminates at a first termination point along a length of said tubular body, and said second steering lumen extends from said proximal end region and terminates at a second termination point along the length of said tubular body,

wherein said first steering lumen comprises a first inlet port adapted to be coupled to a first fluid source, and wherein said second steering lumen comprises a second inlet port adapted to be coupled to a second fluid source; and

- an active region adjacent to said distal end of said catheter, wherein said first and second steering lumens extend adjacent to said active region;

the method comprising the steps of

(a) inserting said distal end of said catheter body into a blood vessel within a patient's body containing the target tissue;

(b) introducing steering fluid through said first inlet port and into said first steering lumen;

(c) introducing steering fluid through said second inlet port and into said second steering lumen; and

(d) steering said active region adjacent to the target tissue using fluid-force-induced bending moments.

28. (previously presented) The method of claim 27, wherein said step (d) further comprises

(i) creating a first fluid-force-induced bending moment by regulating a first flow rate and a first pressure of said steering fluid in said first steering lumen; and

(ii) creating a second fluid-force-induced bending moment by regulating a second flow rate and a second pressure of said steering fluid in said second steering lumen.

29. (previously presented) The method of claim 28, wherein said first termination point is at a first longitudinal distance from said proximal end region of said tubular catheter body, and wherein said second termination point is at a second longitudinal distance from said proximal end region of said tubular catheter body.

30. (previously presented) The method of claim 29, wherein said first longitudinal distance is the same as said second longitudinal distance.

31. (previously presented) The method of claim 29, wherein said first and second termination points are at different radial locations around the circumference of said tubular catheter body.

32. (previously presented) A method of steering and shaping a catheter for examination, diagnosis, or treatment of target tissue, the catheter comprising

- a body defining a catheter longitudinal axis extending between a proximal end region and a distal end;
- an active region adjacent to said distal end of said catheter body;
- a longitudinally-extending ablation fluid supply lumen adapted to deliver ablation fluid from said catheter body proximal end region to said active region; and
- a plurality of longitudinally-extending, sealed actuating lumens, wherein each sealed actuating lumen has a proximal region and a distal region, wherein each sealed actuating lumen proximal region further comprises an inlet port in fluid communication with a source of steering fluid, wherein each sealed actuating lumen distal region is adjacent to said active region, and wherein each of said plurality of sealed actuating lumens extends adjacent to said ablation fluid supply lumen along a longitudinal axis that is offset from said catheter longitudinal axis;

the method comprising the steps of

(a) inserting said distal end of said catheter body into a blood vessel within a patient's body containing the target tissue;

(b) introducing steering fluid through said inlet ports and into said plurality of sealed actuating lumens; and

(c) regulating a flow rate and a pressure of said steering fluid in said plurality of sealed actuating lumens to steer said active region adjacent to the target tissue using fluid-force-induced bending moments.

33. (previously presented) The method of claim 32, wherein said step (c) further comprises

(i) supplying said steering fluid to a first sealed actuating lumen of said plurality of sealed actuating lumens to steer said distal end of said catheter body in a first direction; and

(ii) supplying said steering fluid to a second sealed actuating lumen of said plurality of sealed actuating lumens to steer said distal end of said catheter body in a second direction.

34. (previously presented) The method of claim 32, wherein said plurality of sealed actuating lumens further comprises

- a first actuating lumen extending distally to a first termination point along said catheter body;
- a second actuating lumen extending distally to a second termination point along said catheter body;
- a third actuating lumen extending distally to a third termination point along said catheter body; and
- a fourth actuating lumen extending distally to a fourth termination point along said catheter body; and

wherein step (c) further comprises steering said active region adjacent to the target tissue using fluid-force-induced bending moments generated by

(i) regulating a first flow rate and a first pressure of said steering fluid in said first actuating lumen;

(ii) regulating a second flow rate and a second pressure of said steering fluid in said second actuating lumen;

(iii) regulating a third flow rate and a third pressure of said steering fluid in said third actuating lumen; and

(iv) regulating a fourth flow rate and a fourth pressure of said steering fluid in said fourth actuating lumen.

35. (previously presented) The method of claim 34, wherein said first termination point, said second termination point, said third termination point, and said fourth termination point are at different longitudinal distances from said catheter body proximal end region, and wherein said

step (c) further comprises selectively controlling the pressure of fluid in said first, second, third, and fourth actuating lumens to steer and shape said catheter by thereby creating fluid-force-induced bending moments at different points along the length of said catheter body.

36. (previously presented) The method of claim 32, wherein said catheter body is a flexible, tubular body, wherein said plurality of sealed actuating lumens are distributed around a circumference of said tubular catheter body, wherein each actuating lumen of said plurality of sealed actuating lumens terminates distally at a particular longitudinal termination point along said tubular catheter body, and wherein said step (c) further comprises creating fluid-force-induced bending moments at said longitudinal termination points along said tubular catheter body.

37. (previously presented) The method of claim 36, wherein said plurality of sealed actuating lumens further comprises a first sector-shaped fluid channel, a second sector-shaped fluid channel, a third sector-shaped fluid channel, and a fourth sector-shaped fluid channel; and wherein said first, second, third, and fourth sector-shaped fluid channels define, in cross section, a segmented circle surrounding said ablation fluid supply lumen.